Remarks

In the Office action mailed February 18, 2004, the specification, drawings, and claim 12 were objected to because labeled elements of the drawings and claim 12 were not defined in the disclosure. See Office action at 2. In the same Office action, claims 1-8, 11-19, and 22-23 were rejected while claims 9, 10, 20, and 21 were objected to for being dependent upon a rejected base claim. See id. at 3, 5, and 9. Applicants have responded to the objections to the specification, drawings, and claims by amending the specification. Additionally, Applicants will argue below that the claims in the application are neither anticipated or made obvious by the prior art cited in the Office action.

Objections

The disclosure was objected to in the Office action due to elements being mislabeled or unlabeled. See id. at 2. In one instance, the element program specific information decoder was given the same numerical reference as TS parser. See id. The amendment to the specification has corrected this informality, and the program specific information decoder, or PSI decoder, is now identified by the numerical reference 7. In another instance, the element "meta data directory" was not identified with a numerical reference. See id. In the amended specification, "meta data directory" is now identified by numerical reference 8. The informalities in the disclosure have therefore been corrected. Applicants request this objection be withdrawn.

The drawings were objected to in the Office action for failing to comply with 37 C.F.R. § 1.84(p)(5) by including reference signs 7, 8, and 17 which were not included in the description. See id. The specification has been amended to include these reference signs: 7 identifies to the PSI decoder, 8 identifies the meta data directory, and 17

identifies the program assembler. The amendment to the specification should bring the drawings into compliance with 37 C.F.R. § 1.84(p)(5). Applicant therefore requests this objection be withdrawn.

Claim 12 was objected to in the Office action because element 17, included in the claim, was not defined in the specification. See id. In the amendment to the specification, element 17 is identified as the reference numeral for the program assembler. In addition, this reference number has been deleted from amended claim 12. Therefore, these amendments to the specification and claim 12 correct the informality in claim 12 and Applicants request this objection be withdrawn.

Claims 9-10 and 20-21 were objected to as being dependent on rejected base claims 1 and 12. See id. at 6. Applicants' response to these objections is found below in the subsection "Allowable Subject Matter."

§ 102(b) Rejection

Claims 1-3, 5-8, 11-14, 16-19, and 22 were rejected under 35 U.S.C. § 102(b) as being anticipated by Chen et al. (U.S. Pat. No. 5,917,830). In order to anticipate a claim, a reference must teach all the elements of a claim. See Verdegaal Bros., Inc. v. Union Oil Co., 814 F.2d 628, 631 (Fed. Cir. 1987). Applicants contend that Chen et al. does not teach all the elements of Applicants claim and therefore does not anticipate Applicants' claims.

Chen et al. does not teach several elements of Applicants' independent claims 1 and 12, particularly those elements related to establishing control data objects and using those control data objects to arrange a splice of data streams. Applicants' control data objects, which store time references and data packet status information (related to whether the packet is occupied or idle, i.e., whether data integrity is required) and are also established "on a higher

level for ordered sets of said control data objects for storing information pertaining to different logical structures such as frames, sequences of frames and packetized elementary stream (PES) packets," contain metadata about data packets in the data streams; these control data objects, rather than the actual data packets, are then monitored and manipulated to find in- and out-points, so that the data packets associated with the control data objects are assembled to output a seamlessly-spliced stream of data. Application, pp. 6, ln. 22 -7, ln. 7; pp. 12, ln. 28 -13, ln. 2. In contrast, after receiving the signal to start splicing, Chen et al. determines a pre-splicing packet (generally, the packet closest to splicing start time that carries an anchor frame start code, which indicates that data of an I or P frame is carried in the packet as well as carrying data from the I or P frame and the frame immediately preceding the I or P frame). See Chen et al., col. 2, ln. 22-31. The pre-splicing packet is then processed to discard the anchor frame data to avoid discontinuity at the decoder and a number of stuffing bytes equal to the number of bytes of discarded anchor frame data is added to an adaptation field to ensure fixed packet length. See id., col. 2, ln. 31-37; col. 16, lin. 14-40. A number of null packets may also be added to the output stream at the transition point between the data streams. See id., col. 2, ln. 38-53. A post-splicing packet of the main program is determined and positioned to follow the last packet of the inserted stream. See id., col. 2, ln. 54-61. Processing of the post-splicing packet is similar to processing of the pre-splicing packet since frame data which may create a discontinuity is discarded and padding data may be added to compensate for the discarded data. See id., col. 2, ln. 61 - col. 3, ln. 3. Unlike Applicants, Chen et al. does not teach establishing control data objects and then using those control data objects to determine in- and-outpoints of a splice.

In sum, Chen et al. and Applicants employ very

different approaches to splicing. Chen et al. teaches identifying a pre-splicing packet, removing anchor frame data, and adding any necessary padding packets to avoid discontinuity when splicing data streams. In contrast, Applicants teach an approach to splicing where control data objects for data packets are established, analyzed, and manipulated to produce a seamless splice of data streams. As noted above, Chen et al. does not each establishing and using control data objects to splice data streams.

The Office action refers to Fig. 4 in Chen et al. in an attempt to show Chen et al. teaches establishing control data objects and then using those control data objects to achieve splicing. See Office action at 3. Specifically, the Office action identifies Chen et al.'s main stream parser (415), insertion stream parser (420), and video buffer manager (425) as establishing control data objects. See id. However, these parsers and the video buffer manager do not establish control data objects as Applicants' do. As noted above, Applicants' control data objects store time references and data packet status (i.e., whether the data packet is idle or occupied) and are also established at a higher level "for ordered sets of said control data objects for storing information pertaining to different logical structures such as frames, sequences of frames and packetized elementary stream (PES) packets." Application, p. 6, ln. 22-26; see id., p. 18, ln. 26-28. According to Chen et al.:

> The main stream parser 415 parses the data packets of the main stream and provides signals to a video buffer manager 425. These signals include a Program Clock Reference (PCR), a Decoding Time Stamp (DTS), and a video bit rate, R_v, for the main stream. Similarly, the insertion stream parser parses the data packets of the insertion stream to provide PCR', DTS' and R_v' signals to the video buffer manager 425, where the prime notation indicates a

> parameter of the insertion stream. The video buffer manager 425 uses the input signals to determine a number, N, of null packets which will be inserted into the output data stream. Chen et al., col. 6, ln. 13-23.

The signals provided to the video buffer manager are dissimilar to Applicants' control data objects in two respects: they do not include data packet status (whether the packet is idle or occupied) and are used only to determine the number of null packets inserted into the output data stream. In contrast, Applicants' control data objects are established, analyzed, and manipulated to determine where a splice should take place. Chen et al. clearly does not teach Applicants' control data objects and, as noted above, discloses an approach to splicing that, instead of using control data objects to determine in- and out-points as Applicants do, determines pre-and post-slicing packets close to the start and end times of a splice based on an anchor frame start code, discards any data which might create a discontinuity, and adds padding to compensate for any discarded data.

Claim 1

As noted above, Chen et al. does not, as Applicants do, teach a method for splicing data streams using control data objects. Therefore, Chen et al. does not teach several elements of Applicants' claim 1 dealing with control data objects. Specifically, Chen et al. does not teach the following aspects of claim 1:

> establishing for each data packet a control data object storing said time reference and said data packet status information;
> establishing for ordered sets of said first data packets corresponding ordered sets of control data objects;
> establishing for said ordered sets of control data objects other control data

> objects storing information pertaining to different logical structures, such as frames, sequences of frames and packetized elementary stream packets;
>
> queuing the control data objects in different queues dependent on the data packet status or on the status of a group of data packets;
>
> selecting from the queues control data objects associated to data packets to be output in an output stream of data packets;
>
> assembling selected control data objects to a program of associated data packets of different kinds of data;
>
> assembling data packets associated to said selected and assembled control data objects to an output stream of data packets[.] Application, amended claim 1.

Since Chen et al. does not teach any of the above steps of Applicants' claim 1 dealing with control data objects, Chen et al. cannot anticipate Applicants' claim 1. Therefore, a withdrawal of this rejection is requested.

Claims 2-3, 5-8, and 11

Claims 2-3, 5-8, and 11 are dependent claims of independent claim 1 and were rejected in the Office action for being anticipated by Chen et al. See Office action at 3. Applicants have shown that Chen et al. does not anticipate claim 1. Therefore, dependent claims 2-3, 5-8, and 11 cannot be anticipated by Chen et al. Applicants request a withdrawal of this rejection.

Claim 12

Applicants have shown that Chen et al. does not, as Applicants do, teach a method for splicing data streams using control data objects. Therefore, Chen et al. does not teach several elements of Applicants' claim 12 dealing with control data objects. Specifically, Chen et al. does not teach the following aspects of claim 12:

> means for establishing for each data packet a control data object storing said time reference and said data packet status information;
>
> means for establishing for ordered sets of said first data packets corresponding ordered sets of control data objects;
>
> means for establishing for said ordered sets of control data objects other control data objects storing information pertaining to different logical structures of higher level than the data packets such as frames, sequences of frames and packetized elementary stream packets;
>
> means for queuing the control data objects in different queues dependent on the data packet status or on the status of a group of data packets;
>
> means for selecting from the queues control objects associated to data packets to be output in an output stream of data packets;
>
> means for assembling selected control objects to a program of associated data packets of different kinds of data;
>
> means for assembling data packets associated to said selected and assembled control data objects to an output stream of data packets.... Application, amended claim 12.

Since Chen et al. does not teach any of the above means of Applicants' claim 12 concerning control data objects, Chen et al. cannot anticipate Applicants' claim 12. Therefore, a withdrawal of this rejection is requested.

Claims 13-14, 16-19, and 22

Claims 13-14, 16-19, and 22 are dependent claims of independent claim 1 and were rejected in the Office action for being anticipated by Chen et al. See Office action at 3. Applicants have shown that Chen et al. does not anticipate claim 12. Therefore, dependent claims13-14, 16-19, and 22

cannot be anticipated by Chen et al. Applicants request a withdrawal of this rejection.

§ 103(a) Rejection

Claims 4, 15, and 23 were rejected as obvious in the Office action. See id. at 5. Claim 23 was rejected under § 103(a) as being unpatentable over Chen et al. in view of Wine et al. while claims 4 and 15 were rejected under § 103(a) as being unpatentable over Chen et al. in view of Larson et al. Applicants will show below that these claims are not obvious because the limitations of these claims are neither taught nor suggested by a combination of cited references. See MPEP § 2143.03.

Claim 23

Claim 23 was rejected under § 103(a) as being unpatentable over Chen et al. in view of Wine et al. See Office action at 5. According to the Office action, claim 23 was rejected because:

> it would have been obvious to a person of ordinary skill in the relevant art employing an apparatus/method for splicing data streams as taught by Chen et al[.] to incorporate the well known concept of a computer system that is programmed to perform the splicing compressed bitstreams as taught by Wine et al. Id.

Claim 23 has been amended to be an independent claim - a computer program product which when read causes the computer to execute a method (the steps of which are disclosed of claim 1) for splicing data streams. As shown above, Chen et al. does not teach or suggest Applicants' apparatus or method for seamlessly splicing data streams using control data objects. Wine et al. also does not teach or suggest Applicants' apparatus or method for splicing; instead, there are several

options for determining in- and out-points: analyzing the stream "on the fly;" creating an external table indicating where splice points are based on information computed elsewhere, for instance, during encoding; and placing markers within the information stream. See Wine et al., col. 13, ln. 19-65. This final option, placing markers within the information stream, is the preferred option in Wine et al. See id., col. 14, ln. 15-27. None of these options teaches or suggests Applicants' establishment and use of control data objects to splice two data streams.

Claim 23 is not obvious over Chen et al. in view of Wine et al. Neither Chen et al. or Wine et al. teach or suggest Applicants' creation and use of control data objects. Since neither of these references teaches or suggests elements of Applicants' claim 23 dealing with control data objects, the claim is not obvious. Therefore, Applicants request a withdrawal of this rejection and allowance of the claim.

Claims 4 and 15

Claims 4 and 15 were rejected under 35 U.S.C. § 103(a) for being unpatentable over Chen et al. in view of Larson et al. See Office action at 5. Claims 4 and 15 are dependent claims of independent claims 1 and 12, respectively. Applicants have shown above that these independent claims are patentable. Therefore, their dependent claims are also patentable. Applicants therefore request a withdrawal of these rejections.

Allowable Subject Matter

The Office action stated that dependent claims 9-10 and 20-21 were objected to for being dependent upon rejected base claims 1 and 12, respectively. Applicants have shown above that these base claims are not anticipated by the cited prior art and are therefore allowable. If independent claims 1 and 12 are allowable, so are their dependent claims 9-10 and

20-21. Applicants therefore request a withdrawal of the objection to these claims.

Conclusion

Applicants have amended some of the claims as well as the specification. Applicants have responded to objections to the specification, drawings, and claim 12 and corrected informalities in the application. Applicants have also shown the application's claims are neither anticipated nor made obvious by the cited patents. A Notice of Allowance is requested.

CERTIFICATE OF MAILING

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, Alexandria, VA 22313.

Signed: Sally Azevedo
Typed Name: Sally Azevedo

Date: May 12, 2004

Respectfully submitted,

Nissa M. Strottman

Nissa M. Strottman
Reg. No. 52,257

P.O. Box 2-E
San Jose, CA 95109-0005
(408) 297-9733